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ABSTRACT

This report provides a statistical portrait of teen participation in 10 of the most prevalent risk behaviors. It focuses on the overall participation in each behavior and in multiple risk taking. The booklet presents the overall incidence and patterns of teen involvement in the following risk behaviors: (1) regular alcohol use; (2) regular tobacco use; (3) other illegal drug use; (4) weapon carrying; (5) suicide attempts; (6) regular binge drinking; (7) marijuana use; (8) fighting; (9) suicidal thoughts; and (10) risky sexual activity. The complex picture that emerges shows that teens' overall involvement in risk taking has declined (except among Hispanic youth) during the past decade. Multiple risk teens, however, remain an important group responsible for most adolescent risk taking. The report covers three aspects of risk behaviors among teens: changes in risk taking over the past decade; incidence and patterns of multiple risk taking; and involvement of risk takers in positive activities. Data are based on three national surveys: the Youth Risk Behavior Surveys, the National Survey of Adolescent Males, and the National Longitudinal Study of Adolescent Health. (Contains 18 charts and 38 endnotes.) (SLD)

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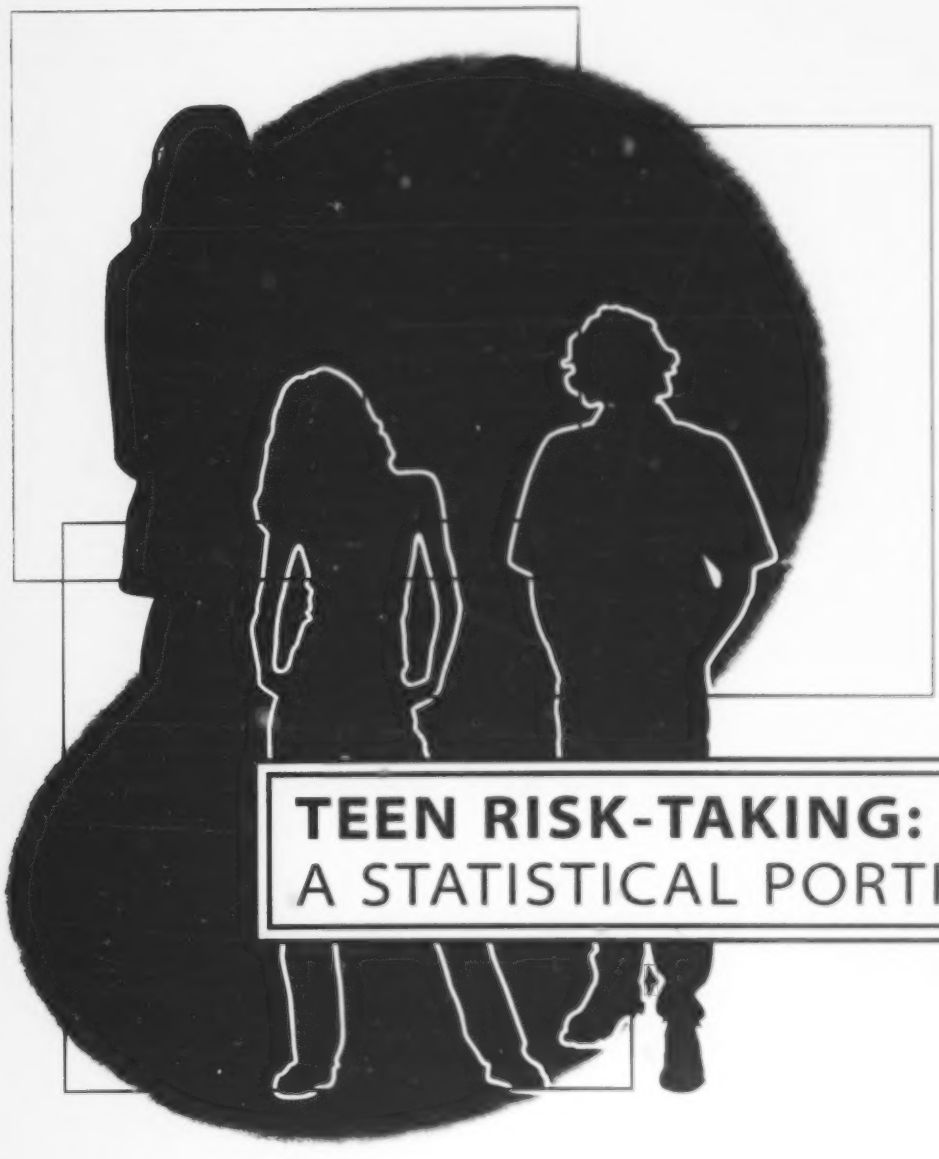

TEEN RISK-TAKING: A STATISTICAL PORTRAIT

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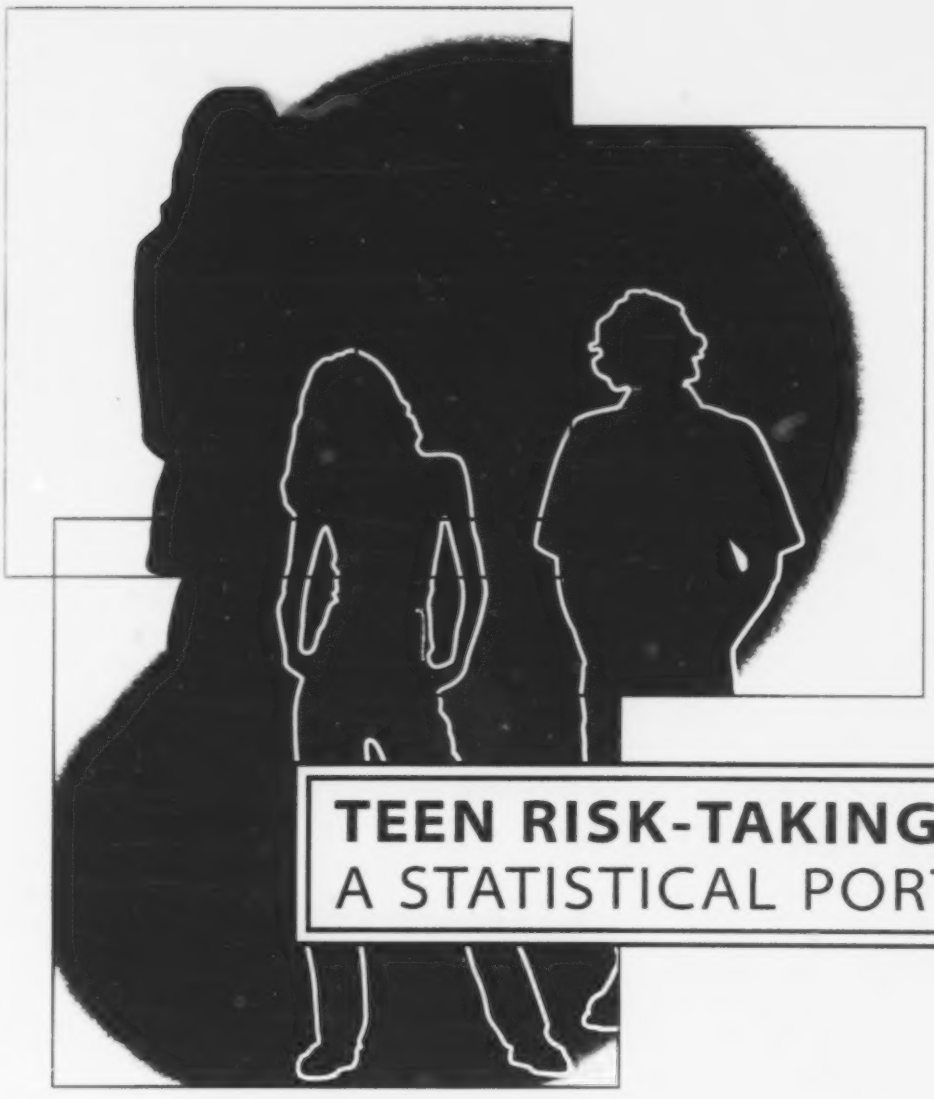

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PORTRAIT HIGHLIGHTS

The most serious threats to the health and safety of adolescents and young adults are preventable. They result from such risk-taking behaviors as fighting, substance abuse, suicide, and sexual activity rather than from illnesses. These behaviors have harmful, even deadly, consequences.

Changes in teen participation in specific risk behaviors have been well documented. What is less well known, and of growing concern, is how overall teen risk-taking has changed. In addition, information is lacking about the nuances in the behavior of adolescents who engage in more than one of these risks at a time.[2] Teens who participate in multiple risks increase the chance of damaging their health.

This booklet provides a statistical portrait of teen participation in 10 of the most prevalent risk behaviors. It focuses on the overall participation in each behavior and in multiple risk-taking. The booklet presents the overall incidence and patterns of teen involvement in the following risk behaviors:

- Regular alcohol use
- Regular tobacco use
- Other illegal drug use
- Weapon carrying
- Suicide attempts
- Regular binge drinking
- Marijuana use
- Fighting
- Suicidal thoughts
- Risky sexual activity

The complex picture that emerges alleviates some traditional concerns, while raising new ones. Teens' overall involvement in risk-taking has declined during the past decade (except among Hispanics), with fewer teens engaging in multiple risk behaviors. But multiple-risk teens remain an important group, responsible for most adolescent risk-taking. However, almost all risk-takers also engage in positive behaviors; they participate in desirable family, school, and community activities. These positive connections offer untapped opportunities to help teens lead healthier lives.

The booklet covers three aspects of risk behaviors among teens: (1) changes in risk-taking among high school students over the past decade; (2) incidence and patterns of multiple risk-taking among teens; and (3) extent and pattern of involvement of multiple risk-takers in school clubs, teen sports, religious services or youth groups, the workplace, and the health care system.

The data and discussions are based on analyses of three recent national surveys: the Youth Risk Behavior Surveys (YRBS), the National Survey of Adolescent Males (NSAM), and the National Longitudinal Study of Adolescent Health (Add Health). The research was conducted for the U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation.

Focusing on trends and patterns in overall risk-taking and multiple risk-taking, the booklet reports that:

Overall risk-taking among high school students declined during the 1990s. Between 1991 and 1997, there was a sizable increase in the share of students who did not participate in any of the 10 risk behaviors and a sizable decrease in the proportion of students who engaged in multiple risk behaviors. Despite this, the share of highest-risk students—those participating in five or more risk behaviors—remained stable. Of note, Hispanic students did not report the same shift toward less risk-taking.

Most risks are taken by multiple-risk students. The overall prevalence of a specific risk behavior among teenagers is due primarily to the behavior of multiple-risk students, since the majority of students involved in any given behavior also were engaging in other risk behaviors. For example, among the 12 percent of students reporting regular tobacco use, 85 percent were multiple risk-takers.

Nearly all teens, even those engaging in multiple risk behaviors, participate in positive behaviors. Ninety-two percent of students engage in at least one positive behavior, such as earning good grades, participating in extracurricular activities, spending time with parents, or being involved in a religious institution. Most out-of-school boys also were involved in appropriate positive behaviors, although less so than their in-school peers. While multiple-risk teens engage in positive behaviors, participation in positive behaviors declines with increased risk-taking.

Multiple-risk adolescents have many points of contact beyond home and the classroom. The assumption that risk-taking teens are socially disconnected is challenged by new findings that map their participation in a wide range of settings, such as faith-based institutions, the workplace, health care, and the criminal justice system. Their involvement in settings beyond the home and the classroom, especially for out-of-school adolescents, offers opportunities for health intervention to reduce risk-taking.

Based on these trends and patterns in teen risk-taking, parents, educators, and policymakers should:

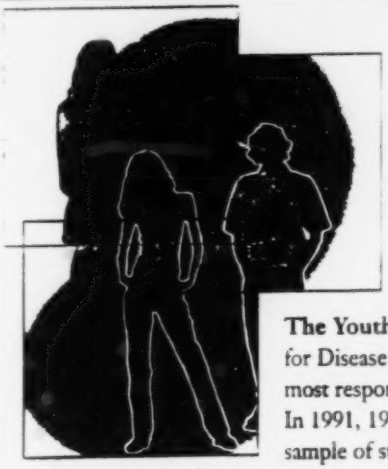
Support positive behaviors of non-risk-taking teens. Declines in risk-taking mean that the share of students taking no risks has increased. These teens need support and expanded opportunities to continue making responsible and healthy decisions as they mature.

Target efforts to reduce specific risk behaviors toward multiple-risk students. Recent public health and policy efforts to reduce the prevalence of key risk behaviors, such as smoking or violence, cannot address these behaviors in isolation from other risk-taking.

Encourage positive behaviors of risk-taking teens, such as time spent on extracurricular or faith-based activities. These behaviors connect students to adults and social institutions and offer opportunities to prevent risk-taking among some students or reduce risk-taking among others.

Expand efforts to reach multiple-risk adolescents in nontraditional settings. Teen participation in settings such as the workplace, the criminal justice system, and faith-based institutions offers innovative opportunities for health services and education programs and the development of personal relationships with positive adult role models that can reduce risk-taking.

Take new steps to reduce risk-taking among Hispanic students. Further research is needed to better understand both risk-taking and adolescent development of this growing group of teens. Programs that are responsive and sensitive to the current ethnic and social diversity of Hispanic adolescents need to be developed and implemented.



ABOUT THE SURVEYS

Three recent surveys measure relevant health risk behaviors in teens. Together, the Youth Risk Behavior Surveys, the National Survey of Adolescent Males, and the National Longitudinal Study of Adolescent Health create a unique opportunity to describe the multiple risk-taking behaviors among diverse youth populations. They are the basis for the portrait drawn in this booklet.

The Youth Risk Behavior Surveys (YRBS). Conducted by the Centers for Disease Control and Prevention, YRBS assesses the behaviors deemed most responsible for influencing health among the nation's high school students. In 1991, 1993, 1995, and 1997, surveys were given to a nationally representative sample of students in grades 9 through 12. Students completed self-administered questionnaires in the classroom during a regular class period. Overall response rates in 1991, 1993, 1995, and 1997 were 68 percent, 70 percent, 60 percent, and 69 percent, respectively; the sample sizes were 12,272 students, 16,296 students, 10,904 students, and 16,262 students, respectively. More information about YRBS and access to data is available at www.cdc.gov/nccdphp/dash.

The National Longitudinal Study of Adolescent Health (Add Health). Add Health is a school-based study of the health-related behaviors of adolescents in the United States. Interviews were conducted in two stages. In the first stage, students in grades 7 through 12 attending 145 schools answered brief questionnaires in their classrooms. In the second stage, in-home interviews were conducted with a subset of students between April and December of 1995. Data for this study came from the 12,105 students participating in both stages of the survey who are representative of adolescents in grades 7 through 12 during the 1994–95 school year. More information about Add Health and access to data is available at www.cpc.unc.edu/addhealth.

The 1995 National Survey of Adolescent Males (NSAM). NSAM is a household survey of a nationally representative sample of 1,729 boys ages 15 through 19. It was designed primarily to examine behavorial aspects of young men's sexual and reproductive behaviors and includes extensive measures of nonsexual risk-taking. The sample is nationally representative of both students and nonstudents. Face-to-face interviews were conducted by trained interviewers in the respondents' homes. The response rate was 75 percent. More information about NSAM and access to data is available at www.socio.com.

A Word about Interviewing Techniques. Prior studies of health risk behaviors among adolescents have been hampered by concerns about the honesty of self-reports for behaviors that are highly sensitive and potentially illegal. To address this concern, both NSAM and Add Health use new computer-assisted interviewing technology to enhance the quality of self-reported data. In these studies, adolescents answer sensitive questions directly on laptop computers instead of using standard paper-and-pencil, self-administered questionnaires. Researchers using NSAM found that teen males were significantly more likely to report participation in many health risk behaviors using the computer rather than the paper self-administered questionnaires.[3] For example, male teens were two times as likely to report daily marijuana use in the past year on the computer questionnaire as compared with the paper-and-pencil version.

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MEASURING HEALTH RISK BEHAVIORS

Health risk behaviors are voluntary behaviors that threaten the well-being of teens and limit their potential for achieving responsible adulthood.[4] Such behaviors also are commonly referred to as "problem behaviors."[5] Risk-taking is distinguishable from risk outcomes—the consequences of the behavior. For example, unprotected sexual intercourse is a risk behavior and is included in this analysis, while teenage pregnancy is a risk outcome and is not examined here.

The 10 health risk behaviors in this report are regular alcohol use, regular binge drinking, regular tobacco use, marijuana use, other illegal drug use, physical fighting, carrying a weapon, suicidal thoughts, suicide attempt, and sexual risk-taking. The consequences associated with these behaviors vary considerably, but each poses a range of potential immediate and long-term health problems.

The definitions of the risk behaviors employed here address regular or established patterns of risk-taking, not just exploratory behavior, by incorporating indicators of recent and frequent participation. For example, "regular tobacco use" refers to the daily use of cigarettes or chewing tobacco during the past 30 days—not infrequent experimentation.[6]

Three recent national surveys—the Youth Risk Behavior Surveys (YRBS), the National Survey of Adolescent Males (NSAM), and the National Longitudinal Survey of Adolescent Health (Add Health)—provide data on the 10 risk behaviors.

A number of qualifications should guide interpretation of the information provided in this portrait. First, common definitions across the three surveys were applied whenever possible. However, differences in the design and administration of these surveys create some lack of comparability. For example, definitions of sexual risk-taking differ. In Add Health and NSAM, it means participation in sexual intercourse without contraception. A comparable measure in YRBS is not possible, since it refers to *ever* engaging in sexual intercourse and thus involves more students. Accordingly, prevalence of risk-taking is examined within each survey, and no attempt is made to create comparisons among surveys.

Second, many of the behaviors are measured with reference to different time periods. Questions about substance use and weapon carrying, for instance, refer to the 30 days prior to the survey; those about suicidal thoughts, suicide attempts, and fighting refer to the year before the survey.

Third, the data presented are descriptive in nature. They describe associations only; causal inferences should not be drawn. Establishing that one behavior occurs with another does not mean that one causes the other.

Fourth, while the behaviors examined are of critical public concern, they do not make an exhaustive list of adolescent health risks.[7] Other studies have explored additional types of risk-taking, such as dangerous driving, eating disorders, and criminal activity.[8] Conclusions from this study do not necessarily extend to these other types of behaviors.

Finally, both the YRBS and Add Health studies only include students and cannot be used to generalize to all adolescents, including those currently out of school. The surveys likely underestimate the prevalence of risk behaviors among all teenagers, since those who drop out of school are at higher risk of engaging in health risk behaviors.[9] Estimates of risk behaviors among older adolescents will be particularly affected, since they are more likely to drop out or to have completed school.

To address this limitation of the other data sources, the 1995 NSAM was used to examine risk-taking among adolescent males ages 15 through 19, both in school and out of school. The out-of-school population includes high school dropouts and those who have completed high school but are not currently enrolled in postsecondary education. Even so, it is important to note that since NSAM interviews male adolescents living in households, there is no information about teens with more tenuous connections to institutions, for example, homeless or runaway teens.[10]

DEFINING HEALTH RISK BEHAVIORS

Within each survey, participation in health risk behaviors was defined to identify regular or established risk-taking. The following table lists the complete definitions developed for the YRBS. Where possible, comparable definitions were developed for Add Health and NSAM.[11]

BEHAVIOR FROM YRBS	DEFINITION
Regular Alcohol Use	Had a drink on three or more days during the past 30 days.
Regular Binge Drinking	Had five or more drinks within a couple of hours on three or more days during the past 30 days.
Regular Tobacco Use	Smoked a cigarette daily during the past 30 days.
Marijuana Use	Smoked marijuana at least once during the past 30 days.
Cocaine Use	Used cocaine or crack at least once during the past 30 days.
Physical Fighting	Was in a physical fight at least once during the past 12 months.
Weapon Carrying	Carried a gun, knife, or other weapon at least once during the past 30 days.
Suicidal Thoughts	Seriously considered attempting suicide in the past 12 months.
Suicide Attempt	Attempted suicide in the past 12 months.
Sexual Intercourse	Ever had sexual intercourse.

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CHANGES IN OVERALL RISK-TAKING, 1991–1997

HIGH SCHOOL STUDENTS REPORTED A SHIFT TOWARD LESS OVERALL RISK-TAKING.

OVERVIEW

As has been documented previously, the 1990s witnessed substantial changes in students' participation in many health risk behaviors, with the prevalence of some risk behaviors increasing and others declining. Reported here for the first time are recent declines in *overall* risk-taking among high school students. There has been a sizable increase in the share of students who do not engage in any of the 10 risk behaviors and a sizable decrease in the proportion of students who engage in multiple risk behaviors.

The share of highest-risk students—those engaging in five or more health risk behaviors—remained stable from 1991 to 1997. Hispanic students did not report the same shift toward less risk-taking as other students. The share of Hispanic students engaging in five or more risk behaviors grew, primarily among those students in grades 9 and 10.

Using nationally representative data from students in grades 9 through 12 from the YRBS of 1991, 1993, 1995, and 1997, changes in high school students' participation in health risk behaviors were examined.[12] While the findings of this study should not be expected to precisely match estimates from other samples, YRBS provides an internally consistent source of data on a range of adolescent risk behaviors that allows for the examination of changes over time.

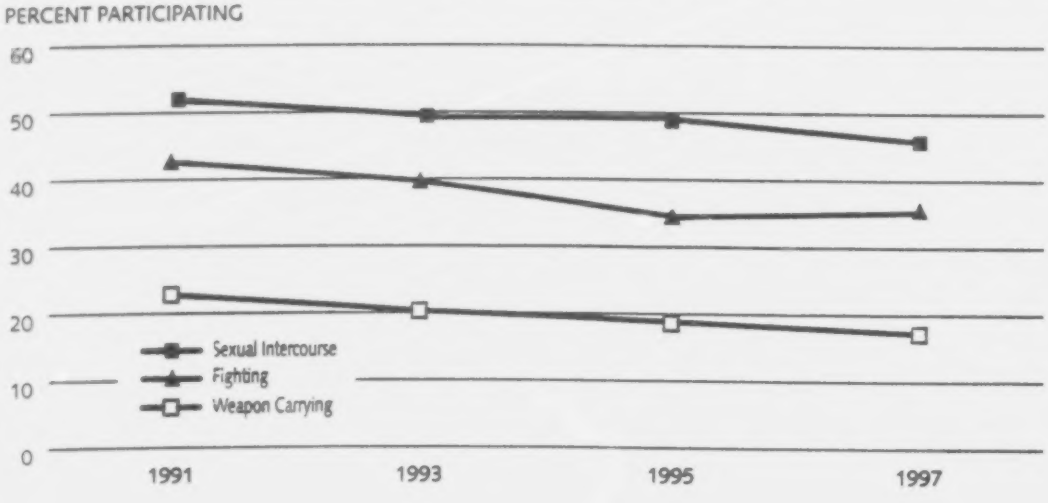
Highlights of the changes over the past decade in both individual risk behavior and overall risk-taking among high school students follow.

FIGHTING, WEAPON CARRYING, AND SEXUAL EXPERIENCE

POSITIVE HEALTH OUTCOMES ACCOMPANIED DECLINES IN FIGHTING, WEAPON CARRYING, AND SEXUAL EXPERIENCE.

Between 1991 and 1997, substantial changes occurred in students' participation in key health risk behaviors.[13] Declines in fighting and weapon carrying parallel positive changes in associated health outcomes.[14] Declines in violent behaviors among students in the 1990s occurred as the youth homicide rate dropped after more than a decade of substantial increase.[15] Deaths due to firearms, the primary source of youth homicide, also declined.[16] YRBS shows a modest, but unprecedented, decline in the proportion of students with past sexual experience. This reduction in sexual activity, from 54 percent in 1991 to 48 percent in 1997, and changes in contraceptive use, were accompanied by declines in the teen pregnancy rate, birth rate, and sexually transmitted disease rates.[17]

Sexual Experience and Violent Behaviors among 9th–12th Graders, 1991–1997



Source: Urban Institute, 2000, analysis of 1991–1997 YRBS.

SUICIDAL BEHAVIORS

DECREASES IN THE PREVALENCE OF SUICIDAL THOUGHTS DID NOT TRANSLATE INTO A SIMILAR REDUCTION IN SUICIDE ATTEMPTS.

The proportion of high school students who reported thinking about suicide dropped from 29 percent in 1991 to 21 percent in 1997. Unfortunately, decreases in the prevalence of suicidal thoughts were not accompanied by changes in suicide attempts. The proportion of students attempting suicide remained stable over the same period, a pattern paralleled by little change in the rate of suicide-related mortality among adolescents during this period.[18]

Suicidal Behaviors among 9th–12th Graders, 1991–1997

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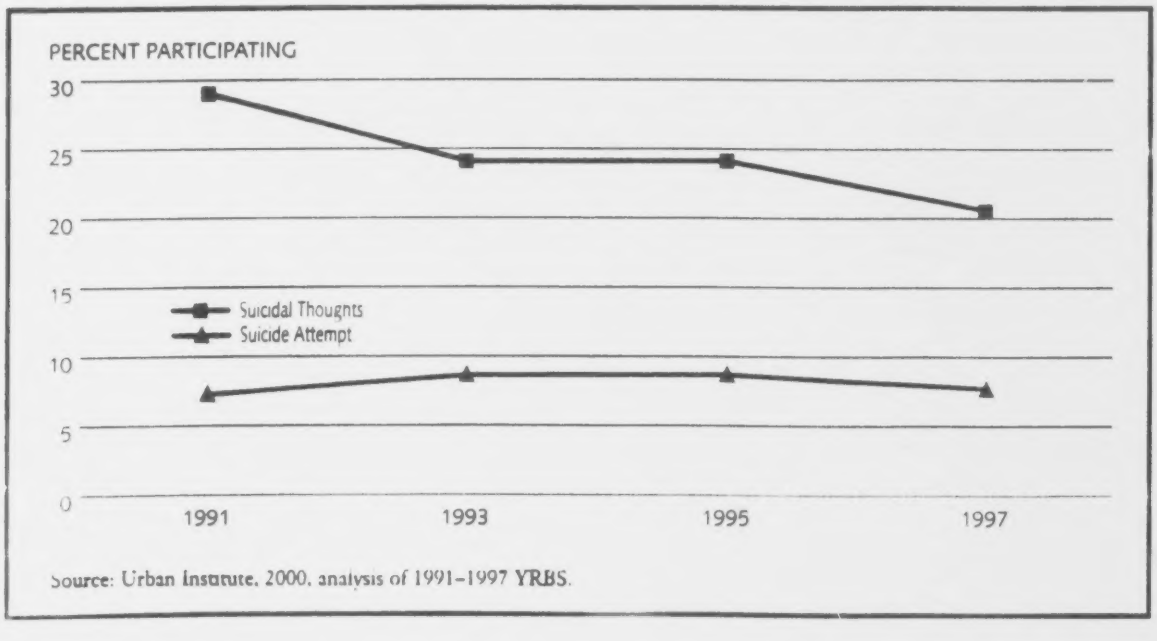


Source: Urban Institute, 2000, analysis of 1991–1997 YRBS.

SUBSTANCE USE

BY 1997, MARIJUANA USE HAD BECOME ALMOST AS COMMON AS REGULAR ALCOHOL USE.

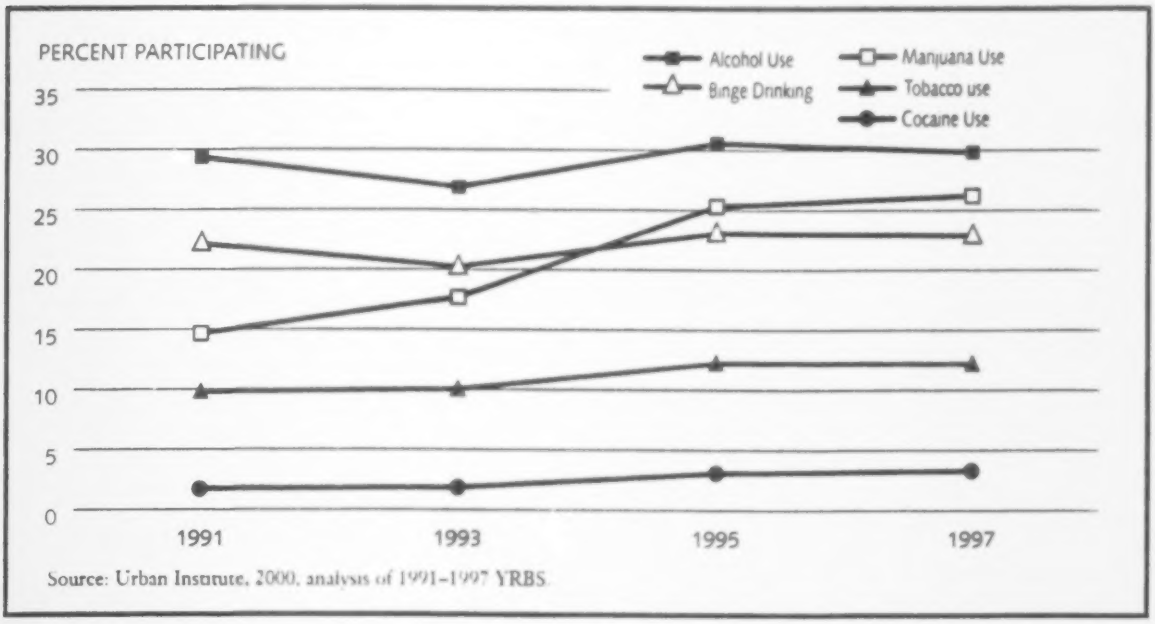
Garnering much public attention are the substantial increases in marijuana and cocaine use among high school students between 1991 and 1997.

The share of students who reported marijuana use in the past 30 days increased from 15 percent to 26 percent. Cocaine use, while far less common, increased from 2 percent to 3 percent. Rates of regular tobacco use also increased slightly,[19] while the prevalence of regular alcohol use and regular binge drinking remained stable. Regular alcohol use was the most common type of substance use reported by high school students in both 1991 and 1997. However, with the large increases in the prevalence of marijuana use, marijuana became almost as common as regular alcohol use in 1997.

More recent data from another national survey of high school students, Monitoring the Future, suggests that rates of substance use among students are leveling off, or even declining, after a period of increase.

Daily cigarette smoking among 10th- and 12th-grade students declined by 2.2 percentage points between 1997 and 1998, while the prevalence of illicit drug (including marijuana) and alcohol use remained stable after increasing significantly during the early to mid-1990s.[20] Future analyses will determine if the next wave of the YRBS, collected in spring 1999 (and not yet available), will reveal these same changes.

Substance Use among 9th–12th Graders, 1991–1997



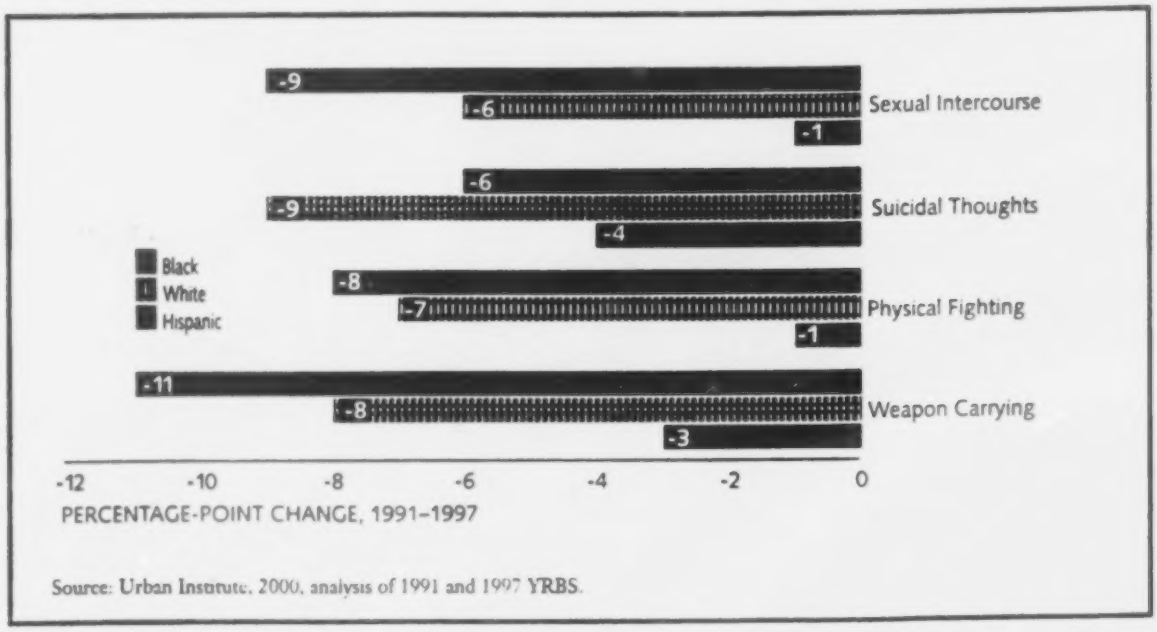
Source: Urban Institute, 2000, analysis of 1991–1997 YRBS.

DIFFERENCES BY RACE

HISPANIC STUDENTS REPORTED NO SUBSTANTIAL DECLINES IN ANY OF THE 10 RISK BEHAVIORS.

Hispanic students did not report the substantial declines in weapon carrying, fighting, suicidal thoughts, and sexual intercourse that black and white students reported.[21] Thus, the declines in individual risk behaviors observed among all high school students can be attributed solely to improvements in the behaviors of non-Hispanic students. In contrast, the increases in the prevalence of marijuana use, cocaine use, and regular tobacco use were reported by both Hispanic and non-Hispanic students (not shown).

Change in Specific Risk Behaviors among 9th–12th Graders, by Race/Ethnicity



Source: Urban Institute, 2000, analysis of 1991 and 1997 YRBS.

CHANGES IN OVERALL RISK-TAKING

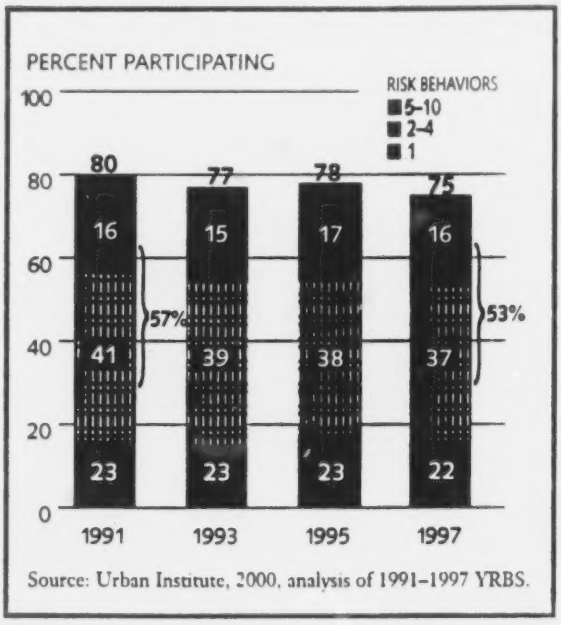
THE DROP IN THE SHARE OF STUDENTS ENGAGING IN TWO OR MORE HEALTH RISK BEHAVIORS HELPED REDUCE OVERALL RISK-TAKING.

The general downward shift in overall risk-taking can be explained by two specific declines. First, the share of students participating in any health risk behavior declined gradually during this period, from 80 percent in 1991 to 75 percent in 1997—a change equivalent to a 29 percent increase in the proportion of students not involved in any health risk behavior. By 1997, one-fourth of 9th- to 12th-grade students did not participate in any of the risk behaviors examined here.

Second, a decline in the share of students engaged in multiple (two or more) health risk behaviors also contributes to the shift toward less risk-taking. Between 1991 and 1997, the share of students engaging in two or more risk behaviors fell from 57 percent to 53 percent. When students participating in 2 to 4 risk behaviors and students participating in 5 to 10 risk behaviors were examined separately, it was evident that declines in multiple risk-taking occurred almost exclusively in the share of students engaging in 2 to 4 health risk behaviors (41 percent in 1991 versus 37 percent in 1997).

Reductions in overall risk-taking did not extend to the highest-risk students. The share of highest-risk students—those involved in five or more risk behaviors—did not change from 1991 to 1997. Throughout this period, about 16 percent of all students participated in five or more health risk behaviors. Within this group, the average number of health risk behaviors remained fairly stable (6.0 in 1991 versus 6.1 in 1997, not shown).

Number of Health Risk Behaviors among 9th–12th Graders, 1991–1997



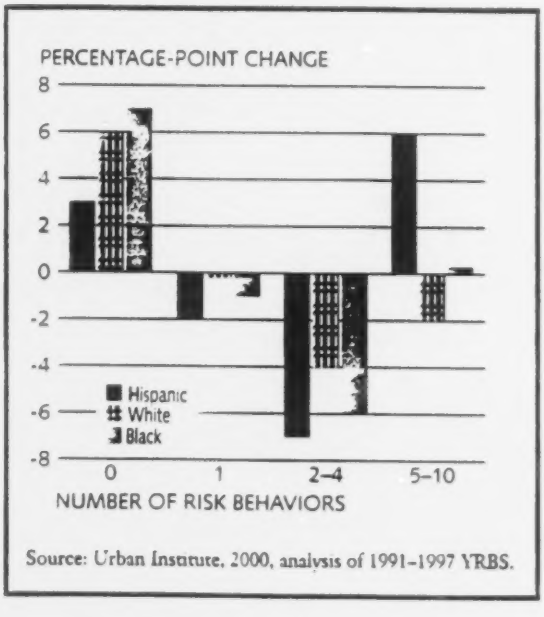
Source: Urban Institute, 2000, analysis of 1991–1997 YRBS.

DEMOGRAPHIC DIFFERENCES

THE SIMILAR DECLINES IN RISK-TAKING AMONG WHITE AND BLACK STUDENTS DID NOT EXTEND TO HISPANIC STUDENTS.

The patterns of declines in risk-taking—declines in the share of students engaging in any risk-taking, declines in multiple risk-taking, and no change in the share of highest-risk students—were similar by gender and grade. However, compared with their non-Hispanic peers, Hispanic students exhibited a smaller increase in the share not engaging in any risk behaviors. Most importantly, the share of Hispanic students engaging in five or more risk behaviors increased from 13 percent in 1991 to 19 percent in 1997. This 6-percentage-point change is an increase of nearly 50 percent.

Change in Risk-Taking among 9th–12th Graders, by Number of Risk Behaviors, 1991–1997



Source: Urban Institute, 2000, analysis of 1991–1997 YRBS.

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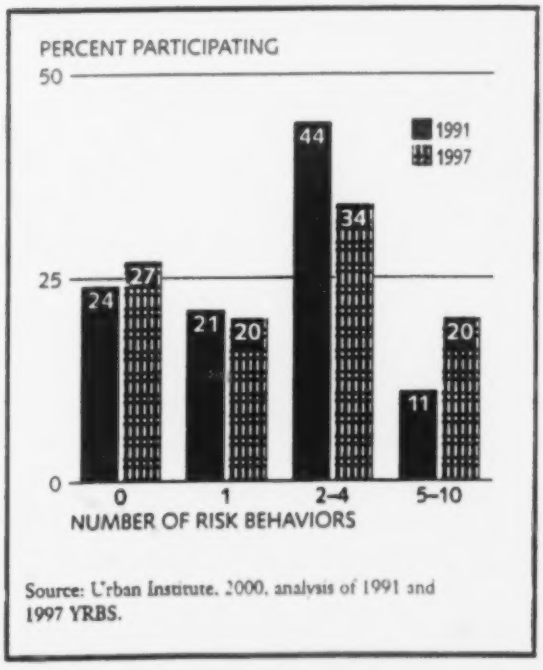
HIGH-RISK HISPANIC STUDENTS BY GRADE

NINTH- AND 10TH-GRADE HISPANIC STUDENTS EXPERIENCED THE GREATEST INCREASE IN THEIR SHARE OF HIGHEST RISK-TAKERS.

Among Hispanic 9th and 10th graders, participation in five or more risk behaviors nearly doubled from 11 percent in 1991 to 20 percent in 1997. The share of Hispanic students in grades 11 and 12 participating in five or more risk behaviors increased only three percentage points, from 16 to 19 percent. Among non-Hispanic white and non-Hispanic black students, participation in five or more risk behaviors remained relatively stable from 1991 to 1997 for all grades (not shown).

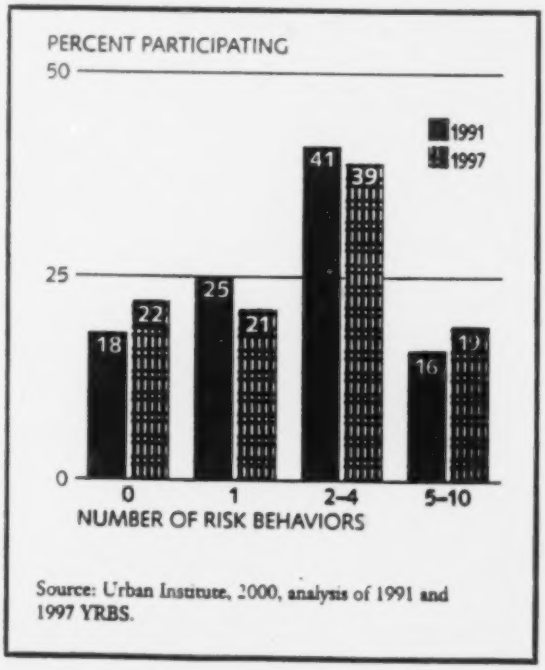
YRBS did not collect further information that would permit more detailed analysis of risk-taking among Hispanic students. In particular, it is not possible to distinguish by different ethnic and cultural subgroups among Hispanics. Other research finds substantial cross-sectional differences in health risk behaviors among Hispanic students by immigrant status and country of origin.[22]

Change in Risk-Taking among 9th- and 10th-Grade Hispanic Students, 1991 and 1997



Source: Urban Institute, 2000, analysis of 1991 and 1997 YRBS.

Change in Risk-Taking among 11th- and 12th-Grade Hispanic Students, 1991 and 1997



Source: Urban Institute, 2000, analysis of 1991 and 1997 YRBS.

MULTIPLE RISKS AND POSITIVE BEHAVIORS

MANY RISK-TAKING TEENS EARN GOOD GRADES, SPEND TIME WITH THEIR PARENTS, AND ARE INVOLVED IN EXTRACURRICULAR ACTIVITIES.

OVERVIEW

Participation in multiple risk behaviors involves the minority of students in grades 7 through 12. Twenty-eight percent of all students engaged in multiple risk behaviors. Multiple risk-taking increased with age: by grades 11 and 12, one out of three students engaged in two or more health risk behaviors.

Although multiple risk-taking characterizes the minority of students, its importance to overall risk-taking among adolescents is great. Multiple-risk students are responsible for most risk-taking. For each specific risk behavior, the majority of students involved in it also engage in other risk behaviors as well.

Yet, most teens, even those engaging in multiple risk behaviors, also engage in positive behaviors. Positive behaviors connect students to a range of adults—parents, ministers, priests or rabbis, coaches, or club advisors—and social institutions. Such connections provide potential points of contact for providing health education to teens.[23] Moreover, the emotional quality of these connections may influence teens' well-being and protect them from risk-taking and its negative consequences.[24]

Data from Add Health and the 1995 NSAM describe the degree to which teens engage regularly in multiple health risk behaviors, contrasting this with the extent to which teens participate in positive behaviors, such as spending time with parents, earning good grades, and being involved in extracurricular activities. Describing participation in these behaviors is an important part of both understanding teens' exposure to health risks and monitoring efforts to reduce those risks.

Highlights of the prevalence and patterns of teen participation in multiple-risk activities and their engagement in positive behaviors follow.

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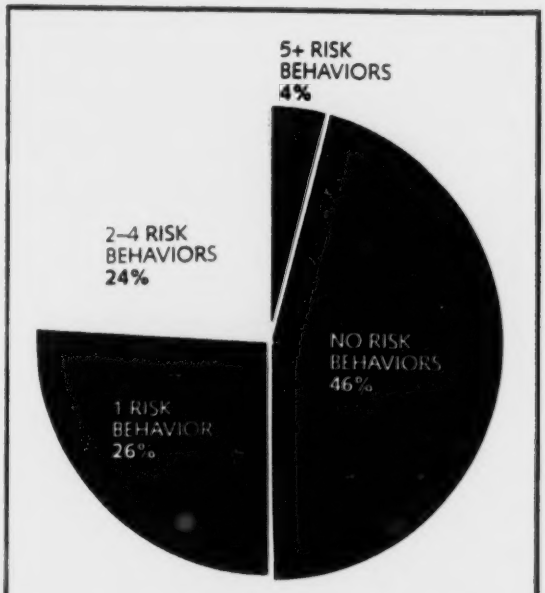
STUDENTS ENGAGING IN MULTIPLE RISK BEHAVIORS

FOR STUDENTS IN GRADES 7 THROUGH 12, TAKING MORE THAN ONE RISK IS THE EXCEPTION, NOT THE RULE.

In total, 28 percent of students participated in multiple risk behaviors, that is, two or more of the 10 behaviors under study. Thus, for students in grades 7 through 12, the co-occurrence of risk behaviors is the exception, not the rule.

Forty-six percent of students in grades 7 through 12 did not participate in any of the identified risk behaviors. Twenty-six percent reported engaging in only one health risk behavior. A similar share, 24 percent, participated in two to four risk behaviors. Participation in five or more health risk behaviors was uncommon, reported by 4 percent of students.

Number of Health Risk Behaviors among 7th–12th Graders



Source: Urban Institute, 2000, analysis of 1995 Add Health.

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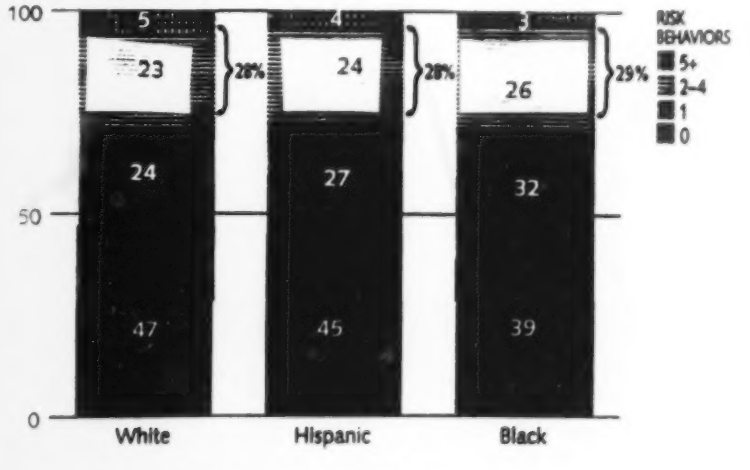
RACIAL AND ETHNIC DIFFERENCES

THE SHARE OF STUDENTS ENGAGING IN MULTIPLE HEALTH RISK BEHAVIORS DOES NOT VARY SIGNIFICANTLY BY RACE OR ETHNICITY.

Despite the fact that racial/ethnic groups were almost equally likely to engage in multiple health risks, black students were less likely than white or Hispanic students to engage in no risk behavior, and more likely to engage in only one risk behavior. Black students' elevated rate of participation in one risk behavior derives primarily from their higher rate of fighting (44 percent), as compared with white (29 percent) and Hispanic (39 percent) students.

Distribution of the Number of Health Risk Behaviors among 7th–12th Graders, by Race/Ethnicity



Source: Urban Institute. 2000. analysis of 1995 Add Health. Figures do not always sum to 100 percent due to rounding.

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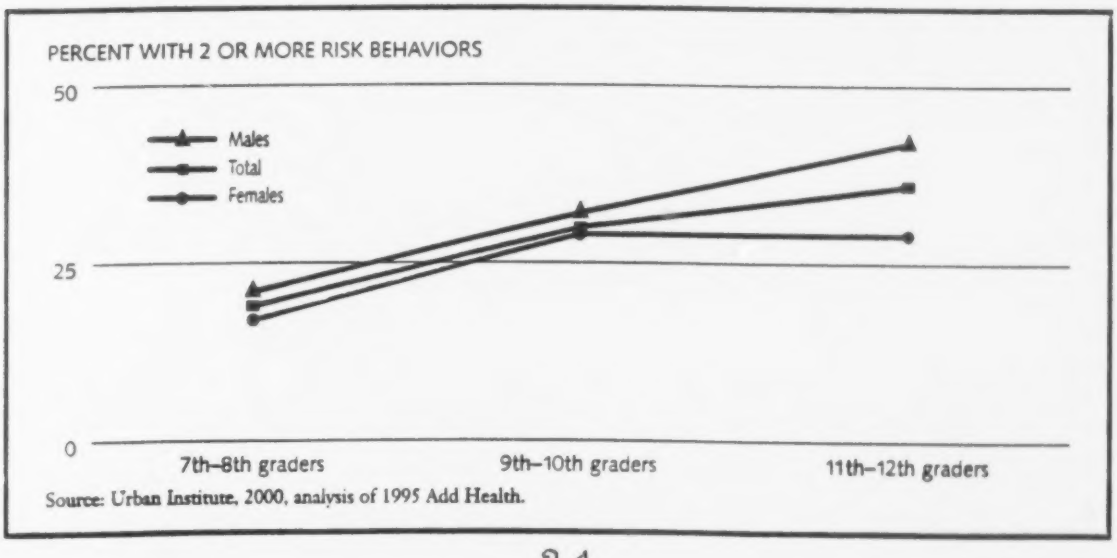
AGE AND GENDER DIFFERENCES

THE LIKELIHOOD THAT A GREATER SHARE OF BOYS THAN GIRLS WILL ENGAGE IN MULTIPLE RISK BEHAVIORS INCREASES IN HIGHER GRADES.

The share of students engaging in multiple risk behaviors increases by grade level. Among students in grades 7 and 8, 19 percent engaged in two or more risk behaviors. This proportion rose to 30 percent among 9th and 10th graders and 36 percent among 11th and 12th graders. While differences by grade may represent fixed developmental patterns of behavior, they may also reflect changes in the onset of specific health risk behaviors over time.

Boys are less likely than girls to report no risk behavior and are more likely to engage in multiple risk behaviors. Thirty-one percent of male students in grades 7 through 12 engaged in two or more risk behaviors, compared with 26 percent of female students. Boys and girls have different patterns of risk-taking by grade, suggesting that boys and girls have different developmental trajectories. Among girls, the rate of multiple risk-taking rose by 75 percent from grades 7 and 8 (17 percent) to grades 9 and 10 (29 percent), and then leveled off among 11th and 12th graders (29 percent). For boys, the increase in multiple risk-taking in older grades was fairly linear, with boys in grades 11 and 12 being twice as likely as boys in grades 7 and 8 to engage in two or more risk behaviors (42 percent, compared with 21 percent).

Developmental Trajectories of Multiple Risk-Takers, by Gender



Source: Urban Institute, 2000, analysis of 1995 Add Health.

MULTIPLE RISK-TAKING BY TYPE OF BEHAVIOR

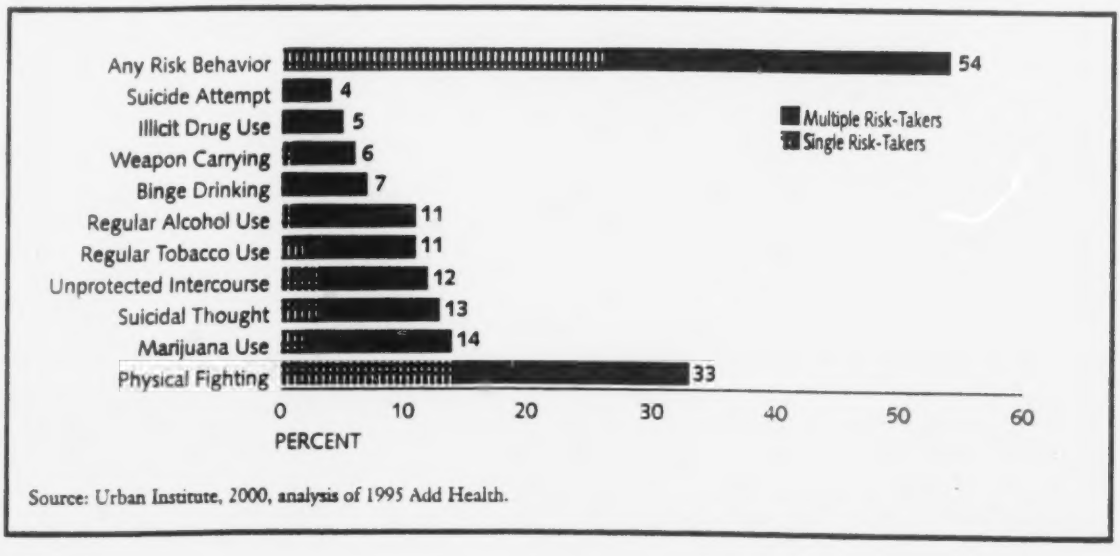
THE MINORITY OF STUDENTS TAKE THE MAJORITY OF RISKS...

While multiple-risk students are a minority of all students in grades 7 through 12, they are the majority of students involved in each specific behavior. For all but one of the risk behaviors, at least 75 percent of students who engaged in it also engaged in another and thus were multiple risk-takers. For example, among the 11 percent of students reporting regular tobacco use, 85 percent were multiple risk-takers. Among the 6 percent of students who carried weapons at school, 89 percent were also involved in at least one additional risk behavior.

The single risk-takers involved in each specific behavior can be summed across all 10 behaviors totaling 26 percent of all students involved in only one health risk behavior. In contrast, a multiple-risk student is counted in the overall prevalence for each risk behavior that he or she is involved in. Thus, the total share of multiple-risk students (28 percent) cannot be summed across the 10 risk behaviors. For example, a student who is a regular smoker and engages in unprotected intercourse is a multiple risk-taker; as such, he or she is counted in both the 11 percent tobacco prevalence and the 12 percent unprotected intercourse prevalence.

Students involved in only one health risk behavior make up a substantial share of one specific risk category: fighting. This is the only behavior for which this is the case. Forty-four percent of fighters engaged in no other health risk behavior. Furthermore, many of these students were only involved in a single fight during the past year. Only 13 percent of students were involved in two or more fights in the past year. Among this group of multiple fighters, 64 percent engaged in another health risk behavior as well (not shown).

Single and Multiple Risk-Taking among 7th–12th Graders, by Behavior



Source: Urban Institute, 2000, analysis of 1995 Add Health.

ENGAGEMENT IN POSITIVE BEHAVIORS

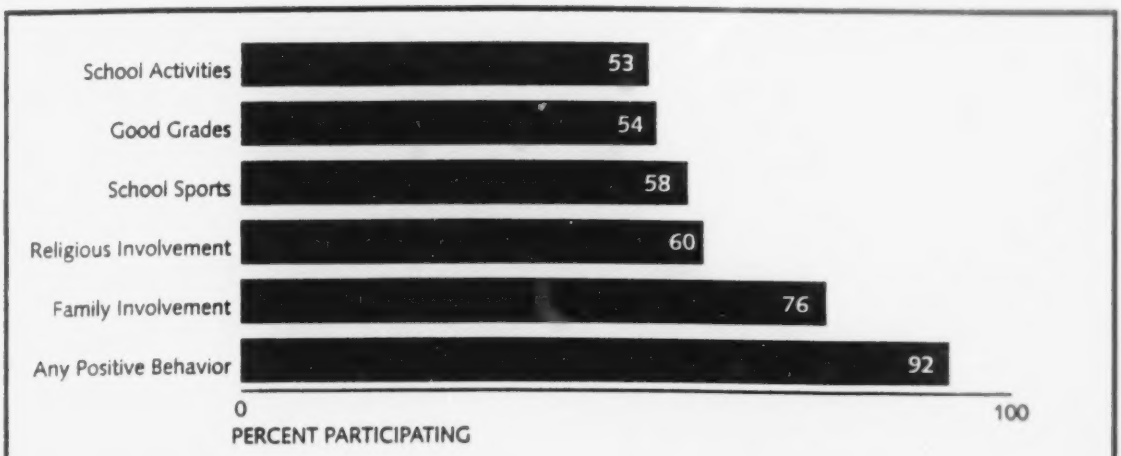
THE MAJORITY OF STUDENTS ENGAGE IN POSITIVE BEHAVIORS.

Today's teens are not just involved in negative health behaviors, they are also actively participating in positive behaviors that may promote their well-being.[25] These behaviors include earning good grades, participating in school sports or other school activities, being involved with a religious institution, and spending time with parents.[26] Identifying patterns of co-occurrence of positive behaviors with risk behaviors helps to challenge the categorization of teens as either "good kids" or "bad kids."

While few students engage in all of the positive behaviors examined, 92 percent of students engaged in at least one. The majority of students reported receiving good grades (54 percent), participating on a school sports team (58 percent), participating in other school activities (53 percent), being involved with a religious institution (60 percent), or spending time with family (76 percent).

Participation in positive behaviors differs by age, grade, and race (not shown). It declines with grade level, falling from an average of 2.6 behaviors among 7th and 8th graders to 2.3 behaviors among 11th and 12th graders. Boys engaged in fewer positive behaviors on average than girls (2.3 positive behaviors versus 2.6 positive behaviors). Hispanic students engaged in fewer positive behaviors (2.1) than white or black students (2.5 and 2.4, respectively). These general patterns extend to each type of positive behavior; the only exception is the greater participation in school sports among male than female students.

Participation in Positive Behaviors among 7th–12th Graders



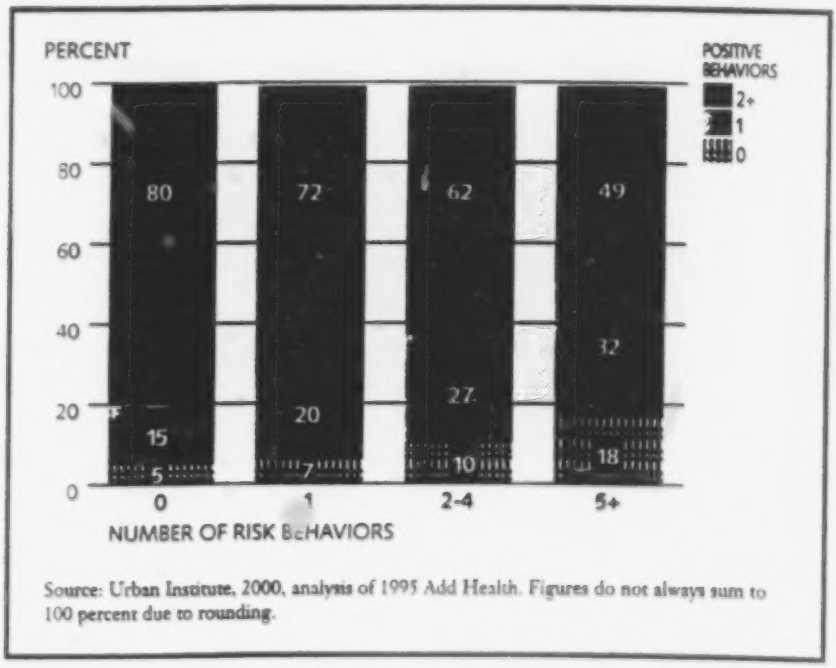
Source: Urban Institute, 2000, analysis of 1995 Add Health.

CO-OCCURRENCE OF POSITIVE AND RISK BEHAVIORS

TEEN RISK-TAKING DOES NOT PRECLUDE POSITIVE BEHAVIOR.

Students who engage in multiple health risk behaviors also engage in many positive behaviors. Even among students engaging in five or more risk behaviors, 81 percent engage in at least one positive behavior. However, the more risk behaviors students engage in, the fewer positive behaviors they report. For example, participation in two or more positive behaviors was reported by 49 percent of students engaging in five or more health risk behaviors, compared with 80 percent of those students engaging in no health risk behaviors. This general pattern is consistent among both sexes and all grades and racial/ethnic groups (not shown).

Participation in Positive Behaviors among 7th–12th Graders, by Risk-Taking



Source: Urban Institute, 2000, analysis of 1995 Add Health. Figures do not always sum to 100 percent due to rounding.

RISK AND POSITIVE BEHAVIORS OF BOYS BY SCHOOL STATUS

MULTIPLE RISK-TAKING IS MORE COMMON AMONG ADOLESCENT BOYS WHO ARE NOT ATTENDING SCHOOL...

Compared with in-school male adolescents, out-of-school male adolescents are more likely to engage in multiple risk behaviors. Sixty-four percent of out-of-school males engage in two or more health risk behaviors, compared with only 40 percent of in-school males. Although out-of-school males are older on average than in-school males, these age differences alone do not account for the greater participation in multiple risk behaviors.

Almost all adolescent males, regardless of school status, engaged in at least one positive behavior (95 percent).[27] Only 8 percent of out-of-school males and 4 percent of in-school males reported engaging in none of the positive behaviors examined. Even among out-of-school males who engaged in multiple risk behaviors, more than 90 percent engaged in some positive behavior.

Out-of-school males are less likely than in-school males to engage in multiple positive behaviors. Only 54 percent of all out-of-school males engaged in two or more positive behaviors, compared with 74 percent of in-school males. Regardless of their level of risk-taking, out-of-school boys participate in fewer positive behaviors.

Participation in Positive Behaviors among Boys Ages 15–19, by School Status and Risk-Taking

	0 POSITIVE BEHAVIORS (%)	1 POSITIVE BEHAVIOR (%)	2–4 POSITIVE BEHAVIORS (%)
In-School	**4**	**22**	**74**
0–1 Risk Behaviors (60%)	4	17	79
2–8 Risk Behaviors (40%)	5	29	66
Out-of-School	**8**	**38**	**54**
0–1 Risk Behaviors (36%)	8	28	64
2–8 Risk Behaviors (64%)	8	44	47

Source: Urban Institute, 2000, analysis of 1995 NSAM.

REACHING MULTIPLE-RISK TEENS

SCHOOLS, HOMES, AND OTHER SETTINGS OFFER UNTAPPED OPPORTUNITIES TO REDUCE TEEN RISK-TAKING.

OVERVIEW

It is commonly believed that multiple-risk teens are socially disconnected and therefore "hard to reach." But the involvement of multiple-risk teens, even those who are not in school, in activities located in a range of settings challenges this perception. In addition to family and classroom involvement, teens interact with other institutions that offer at least three ways to influence risk-taking and contribute to the development of positive lifestyles.

First, social settings can be places to connect with multiple-risk teens in need of health information and services. While classrooms and families are the traditional mechanisms for reaching teens, they are not the only settings in which to contact multiple-risk adolescents. Health education and intervention programs designed for venues where multiple-risk adolescents are involved in other activities offer a way to reach high-risk teens. For example, a health-focused program may partner with a high school to conduct health promotion with athletic teams, reaching some high-risk students who may otherwise never seek services. In addition, since multiple-risk students do not usually compose the majority of students in most settings, such health promotion efforts will reach a broad audience of teens.

Second, the social institutions can be reviewed to identify types of activities that can be incorporated into programs to attract multiple-risk adolescents. For example, since most multiple-risk teens are involved in team sports, a health-focused program may sponsor sporting events to attract adolescents who may normally not attend such a program. Alternately, job training and placement opportunities may attract multiple-risk teens to a program that also seeks to reduce risk-taking.

Finally, the involvement of multiple-risk teens in these diverse settings brings them in contact with a range of adults and peers with the potential to positively influence their behavior. Coaches, ministers, advisors, supervisors, and doctors all come into contact with multiple-risk students, regardless of whether or not the content of their interaction is about health issues. Strengthening these personal relationships and ensuring that the interactions are positive is an additional strategy for reaching multiple-risk teens.

Regardless of how these opportunities are viewed, the important point remains that the overwhelming majority of adolescents, including those who engage in multiple risk behaviors and even those who are not in school, are connected to institutions and are involved in activities that provide opportunities for health intervention.

Data from Add Health describe the extent and pattern among multiple-risk students of involvement in school clubs, team sports, religious services or youth groups, the workplace, and the health care system.[28] Differences in social involvement among students and teens who are not in school either because they dropped out or graduated are based on data on multiple-risk male adolescents from NSAM. The five settings measured in the NSAM are sports, clubs, the workplace, the criminal justice system, and the health care system.[29]

Highlights of teen involvement in social and educational settings where opportunities exist to provide them with health services follow:

CONNECTIONS TO SOCIAL SETTINGS

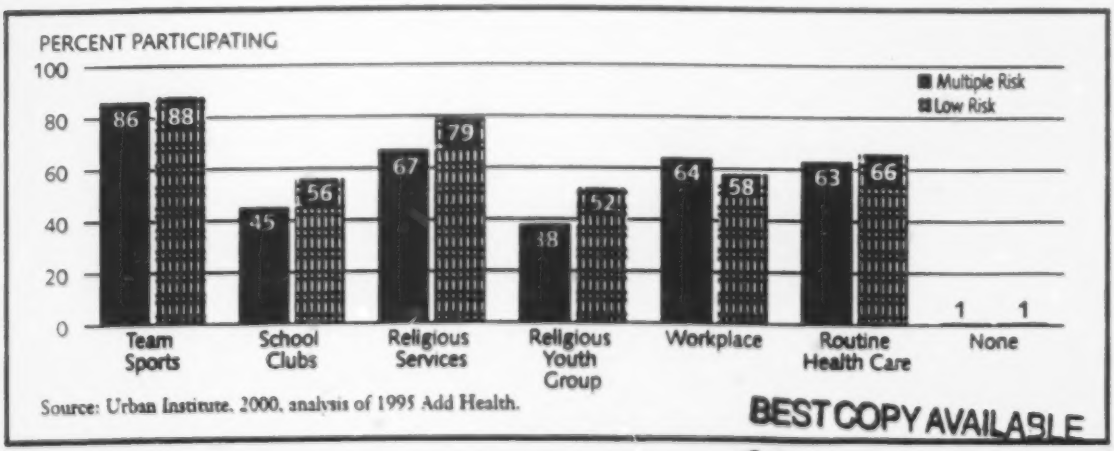
MOST TEENS ARE INVOLVED IN ACTIVITIES THAT OFFER HEALTH INTERVENTION OPPORTUNITIES.

Since Add Health interviewed 7th- through 12th-grade students, all of the multiple-risk students identified are in contact with at least one major institution: school. Schools can influence the health behaviors of their students through formal classroom instruction as well as a wide variety of other activities, such as establishing policies prohibiting cigarette smoking on school grounds, providing access to health care services or counseling, and offering referrals to outside resources. In addition to the content of school health promotion activities, the quality and strength of students' interpersonal connections to their school are also important. Students who report feeling connected to their school are less likely to be involved in behaviors that are detrimental to their health,[30] and strengthening these connections can be an important prevention strategy.[31]

Outside of school, nearly all multiple-risk students identified in Add Health live with a parent or a parent figure. Parents can be an influential source of information about health issues for their children.[32] In addition, the quality of teens' relationships with their parents is related to participation in many health risk behaviors.[33] Efforts to help parents talk to their teens about risk behaviors and to improve the quality of parent-child relationships may be an important strategy to enhance adolescent health and well-being.

While schools and parents can help protect students from health risks, additional opportunities exist to reach multiple-risk students. Although multiple-risk students were less likely than low-risk students (those engaging in only one or no risk behaviors) to be found in most settings, almost all multiple-risk students (99 percent) were linked to at least one of the following: team sports, school clubs, religious services or youth group, the workplace, and the health care system. Differences by gender, race, and grade make some settings more common among some multiple-risk students than other settings.[34]

Connections to Social Settings among 7th–12th Graders, by Risk-Taking



Source: Urban Institute, 2000, analysis of 1995 Add Health.

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DEMOGRAPHICS OF PARTICIPATION

CERTAIN SETTINGS ARE MORE COMMON POINTS OF INTERACTION AMONG SOME MULTIPLE-RISK STUDENTS.

Extracurricular activities: Overall, fewer than half of multiple-risk students participate in nonsport school clubs. Participation in these clubs was higher among multiple-risk girls (56 percent) than boys (37 percent), but similar by race and grade. Almost nine out of ten multiple-risk students participated in team sports, either on an organized team or an informal basis.[35] Participation was slightly greater among multiple-risk boys (89 percent) than girls (82 percent). Participation in team sports declines as teens get older.

Faith-based activities: Two-thirds of multiple-risk students attended religious services in the year preceding their interview. Fewer than four out of ten multiple-risk teens participated in religious youth groups, with participation declining in older grades. Participation in faith-based organizations, especially religious youth groups, is much more common for black multiple-risk students (50 percent) than for white (36 percent) and Hispanic (35 percent) multiple-risk students.

Workplace: Nearly two-thirds of multiple-risk students worked for pay in the four weeks before the interview. Among multiple-risk students, employment is more common among older students, males, and white students than their peers. Overall, multiple-risk students were more likely to be employed than low-risk students (65 percent as opposed to 58 percent).

Health care system: Nearly two-thirds of multiple-risk students received a physical exam within the previous year. While there is little difference by gender and grade, multiple-risk Hispanic students were less likely (58 percent) than white (64 percent) or black (64 percent) students to have had a recent physical exam. Efforts to reach any of these groups cannot rely on routine visits alone, given the lack of universal routine care.[36] However, health care visits are good opportunities to provide health education and counseling to students who engage in multiple health risk behaviors.[37]

Multiple-Risk Students Participating in Social Institutions, by Grade, Gender, and Race/Ethnicity

	Team Sports (%)	School Clubs (%)	Religious Services (%)	Religious Youth Group (%)	Workplace (%)	Routine Health Care (%)	None (%)
Grade							
7–8	91	44	70	45	51	60	3
9–10	87	43	67	42	60	64	1
11–12	82	49	67	32	75	63	0
Gender							
Male	89	37	66	37	68	64	1
Female	82	56	69	40	59	62	2
Race/Ethnicity							
White	86	45	65	36	70	64	1
Black	86	44	73	50	48	64	2
Hispanic	86	42	68	35	52	58	2

Source: Urban Institute, 2000, analysis of 1995 Add Health.

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REACHING MULTIPLE-RISK OUT-OF-SCHOOL TEEN BOYS

REACHING TEENS WHO ARE NOT IN SCHOOL MAY BE PARTICULARLY CHALLENGING, SINCE SCHOOLS ARE A PRIMARY SOURCE OF HEALTH EDUCATION.

A need exists for efforts to reduce risk-taking among out-of-school teen boys. Reaching teens who are not in school may be particularly challenging, since schools are a primary source of health education. Yet nearly all multiple-risk boys are involved in a range of social settings, regardless of their school status.

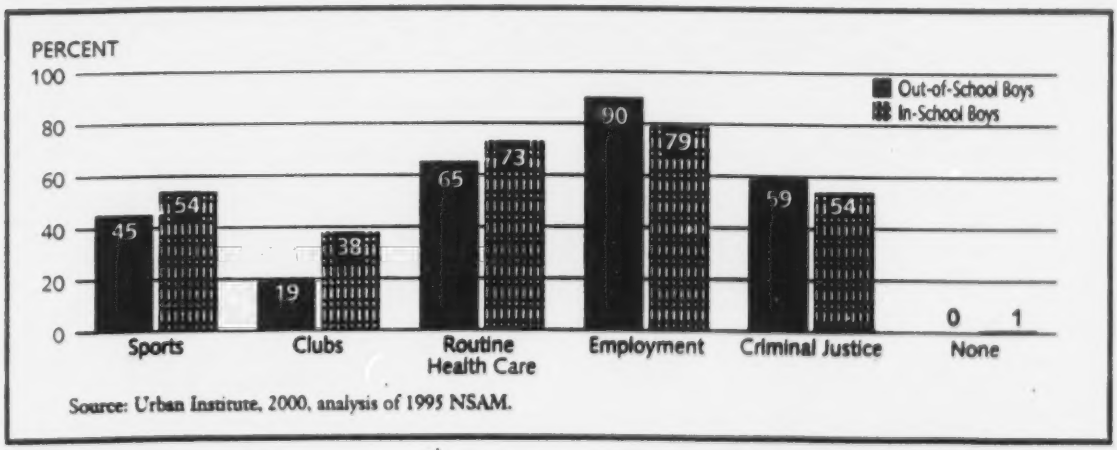
Sports/clubs: Most multiple-risk boys are involved in sports or clubs, although those out of school were less likely than students to be regularly involved in sports (45 percent and 54 percent, respectively) or clubs (19 percent and 38 percent, respectively). Innovative efforts have successfully linked sports and club-related activities with health promotion among high-risk adolescent boys.[38]

Workplace: The workplace is one of the most common connections among out-of-school teen boys, suggesting that it may be an important arena or activity to reach this group. Nine in ten multiple-risk out-of-school males worked, compared with 79 percent of multiple-risk in-school males.

Health care system: Out-of-school teen boys who engaged in multiple risks were less likely than multiple-risk male students to have had a physical exam (65 percent and 73 percent, respectively), making it more challenging to reach these high-risk males in routine care settings.

Criminal justice system: Involvement in the criminal justice system is also relatively common among multiple-risk teen boys, regardless of school status. Among males who engaged in multiple risk behaviors, 59 percent of out-of-school males and 54 percent of in-school males reported having ever been picked up by police, arrested, or spent time in jail.

Connections to Social Settings among Multiple-Risk Boys Ages 15–19, by School Status



Source: Urban Institute, 2000, analysis of 1995 NSAM.

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A TIME FOR CAUTIOUS OPTIMISM

EFFORTS TO REDUCE KEY RISK BEHAVIORS SHOULD TARGET MULTIPLE-RISK TEENS.

There is much good news in this portrait of adolescent risk-taking. Teen risk-taking has decreased over the past decade with declines in the share of students participating in multiple risk behaviors. Moreover, participation in risk behaviors does not preclude positive behavior. With most multiple-risk students also participating in desirable activities, even the students most involved in risk-taking remain connected to a range of adults and social institutions that provides potential points of contact for influencing teens' well-being and protecting them from risk-taking and its negative consequences.

Even so, the picture is not perfect. This portrait raises some important concerns, and it highlights opportunities for intervention. Teens who engage in a risk behavior do not limit themselves to one behavior alone, as most health risk behaviors occur with others. This finding means that knowledge of a teen's participation in one specific risk behavior can be taken as a warning signal of likely involvement in additional risk behaviors.

Multiple-risk teens account for most of the risk-taking among adolescents. Thus efforts to reduce teen risk-taking need to focus on the co-occurrence of risk behaviors and to target multiple-risk teens. Any attempts to reduce the prevalence of specific risk behaviors, such as smoking or violence, cannot address each behavior in isolation. Such efforts will find limited success unless they can change the behavior of multiple-risk students.

Finally, there is a disturbing countertrend. Hispanic participation in teen risk-taking has not declined as much as has that of other ethnic and racial groups over the past decade. Compared with other groups, the share of Hispanic students engaging in no risk behaviors was smaller, and, importantly, the share of Hispanic students engaging in five or more risk behaviors has nearly doubled for 9th and 10th graders.

Given this complicated picture, it will be important over the next several years to strengthen and expand the network of health and other services located where teenagers (students and out-of-school teens) are most easily reached: their schools, churches, athletic activities, the workplace, and the like. As service providers seek to reduce teen involvement in risk-taking activities and mitigate the harm to them from such involvement, services should be built on and reinforce the strengths of these students—their involvement in positive behaviors.

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ENDNOTES

[1] This paper is based on three reports: *Changes in Risk-Taking among High School Students, 1991–1997: Evidence from the Youth Risk Behavior Surveys* by Scott Boggess, Laura Duberstein Lindberg, and Laura Porter; *Multiple Threats: The Co-Occurrence of Teen Health Risk Behaviors* by Laura Duberstein Lindberg, Scott Boggess, and Sean Williams; and *Reaching Out to Multiple Risk Adolescents* by Laura Porter and Laura Duberstein Lindberg.

[2] There is also concern about adolescents' participation in more than one risk behavior at a single point in time, such as drinking immediately prior to sexual intercourse. (See, for example, Halpern-Felsher, B.L., Millstein, S.G., and Ellen, J.M. 1996. "Relationship of Alcohol Use and Risky Sexual Behavior: A Review and Analysis of Findings." *Society for Adolescent Medicine* 19: 331–36.)

[3] Turner, C.F., Ku, L., Pleck, J., Lindberg, L.D., and Sonenstein, F.L. 1998. "Increased Reporting of Adolescent Sexual Behavior, Drug Use, and Violence with Computer Survey Technology." *Science* 280 (5365): 867–73.

[4] Resnick, G., and Burt, M.R. 1996. "Youth at Risk: Definitions and Implications for Service Delivery." *American Journal of Orthopsychiatry* 66 (2): 172–88; Elliott, D.S. 1993. "Health-Enhancing and Health-Compromising Lifestyles." In *Promoting the Health of Adolescents*. Millstein, S.G., Petersen, A.C., and Nightingale, E.O., eds. New York, NY: Oxford University Press.

[5] Jessor, R., and Jessor, S. 1977. *Problem Behavior and Psychosocial Development: A Longitudinal Study of Youth*. New York, NY: Academic Press.

[6] This is similar to the measure of cigarette smoking employed in the national indicators of child well-being. U.S. Department of Health and Human Services (DHHS). Office of the Assistant Secretary for Planning and Evaluation. 1998. *Trends in the Well-Being of America's Children and Youth*. Washington, DC: DHHS.

[7] For further information on changes in other health risk behaviors measured in the YRBS, see *Fact Sheet: Youth Risk Behavior Trends*, http://www.cdc.gov/nccdphp/dash/yrbs/trend.htm, accessed 7/9/99.

[8] Kolbe, L.J., Kann, L., and Collins, J.L. 1993. "Overview of the Youth Risk Behavior Surveillance System." *Public Health Report* 108 (supp. 1): 2–10; Ponton, L.E. 1996. "Disordered Eating." In *Handbook of Adolescent Health Risk Behavior*. New York and London: Plenum Press; Osgood, D.W., O'Malley, P.M., Bachman, J.G., and Johnston, L.D. 1988. "The Generality of Deviance in Late Adolescence and Early Adulthood." *American Sociological Review* 53: 81–93.

[9] Brener, N.D., and Collins, J.L. 1998. "Co-occurrence of Health-Risk Behaviors among Adolescents in the United States." *Journal of Adolescent Health* 22 (3): 209–13; Centers for Disease Control. 1994. "Health Risk Behaviors among Adolescents Who Do and Who Do Not Attend School—United States, 1992." *Morbidity and Mortality Weekly Report* 43: 129–32.

[10] For examples of programs for these high-risk groups, see the National Clearinghouse on Families and Youth: www.ncfy.com.

[11] Health risk behaviors are measured slightly differently in the Add Health and NSAM surveys. Health risk behaviors in Add Health include: ***Regular Tobacco Use***—defined as using chewing tobacco every day in the past 30 days or smoking cigarettes every day in the past 30 days; *Regular Alcohol Use*—defined as drinking alcohol on one or more days per week during the past 12 months; *Regular Binge Drinking*—defined as drinking five or more drinks in a row on one or more days per week during the past 12 months; *Recent Marijuana Use*—defined as using marijuana during the past 30 days; *Recent Use of Other Illicit Drugs*—defined as using cocaine, inhalants, LSD, PCP, ecstasy, or other illicit drugs in the past 30 days; *Weapon Carrying*—defined as carrying a weapon such as a gun, knife, or club to school during the past 30 days; *Fighting*—defined as getting into a physical fight during the past 12 months; *Suicide Attempt*—defined as attempting suicide during the past 12 months; *Suicidal Thoughts*—defined as seriously thinking about suicide during the past 12 months; *Unprotected Intercourse*—defined as not using an effective contraceptive method at last sex during the past 12 months. Only eight behaviors are measured in NSAM; these include: *Regular Tobacco Use*—defined as smoking a cigarette daily in the past 12 months; *Regular Alcohol Use*—defined as having a drink weekly or daily in the past 12 months; *Regular Binge Drinking*—defined as having 5 or more drinks within a couple of hours 4 or more times in the past 30 days; *Marijuana*—defined as using marijuana at least monthly; *Other Illicit Drug Use*—defined as using cocaine/crack or injected drugs at least monthly; *Fighting*—defined as getting in a physical fight in the past 12 months; *Weapon Carrying*—defined as carrying a gun, knife, or other weapon in the past 30 days; *Unprotected Intercourse*—defined as using no effective contraceptive method in last sex in the past 12 months.

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[12] State- and local-based surveys similar to the Youth Risk Behavior Surveys are conducted by state and local education agencies as part of a larger surveillance effort. Only the national surveys are examined here.

[13] The change from 1991 to 1997 had to be statistically significant ($p < .05$) when included in a multivariate model that controlled for the distribution of students by gender, grade, and race/ethnicity. Intermediate changes may have also occurred but are not examined here. Significance tests were calculated to adjust for the complex sampling design of the YRBS. All estimates are weighted to adjust for students' nonresponse and the oversampling of black and Hispanic students.

[14] For more extensive information on recent changes in other violence-related behaviors among high school students, see Brener, N.D., et al. 1999. "Recent Trends in Violence-Related Behaviors among High School Students in the United States." *Journal of the American Medical Association* 282 (5): 440–46.

[15] U.S. Department of Health and Human Services (DHHS). Office of the Assistant Secretary for Planning and Evaluation. 1998. *Trends in the Well-Being of America's Children & Youth*. Table HC 1.4A, p. 143.

[16] DHHS. Office of the Assistant Secretary for Planning and Evaluation. 1998. *Trends in the Well-Being of America's Children & Youth*. Table HC 1.4B, p. 144.

[17] For increases in condom use among adolescents, see Sonenstein, F.L., et al. 1998. "Changes in Sexual Behavior and Condom Use among Teenaged Men: 1988 to 1995." *American Journal of Public Health* 88 (6): 956–59. For declines in teen births, see Ventura, S.J., et al. 1998. *Teenage Births in the United States: National and State Trends, 1991–97*. Hyattsville, MD: U.S. National Center for Health Statistics. For declines in teen pregnancy, see Henshaw, S. 1999. *Teenage Pregnancy: Overall Trends and State-by-State Information*. New York, NY: The Alan Guttmacher Institute. Also see Kaufmann, R.B., et al. 1998. "The Decline in U.S. Teen Pregnancy Rates, 1990–1995." *Pediatrics* 102 (5): 1141–47. For declines in sexually transmitted diseases among adolescents, see Centers for Disease Control and Prevention (CDC). 1998. *Sexually Transmitted Disease Surveillance*. Atlanta, GA: CDC.

[18] DHHS. Office of the Assistant Secretary for Planning and Evaluation. 1998. *Trends in the Well-Being of America's Children & Youth*. Table HC 1.5, p. 149.

[19] The YRBS reports significant increases in current cigarette smoking (at least once in the 30 days preceding the survey), from 27.5 percent in 1991 to 36.4 percent in 1997. CDC. 1999. *Fact Sheet: Youth Risk Behavior Trends*. http://www.cdc.gov/nccdphp/dash/yrbs/trend.htm, accessed 7/9/99.

[20] Johnston, L.D., O'Malley, P.M., and Bachman, J.G. 1998. *National Survey Results on Drug Use from the Monitoring the Future Study, 1975–1997*. Rockville, MD: National Institutes of Health. National Institute on Drug Abuse, NIH Pub. No. 98-4345. Institute for Social Research, University of Michigan.

[21] Students were asked to self-identify their race/ethnicity from the following categories: "Hispanic," "White—not Hispanic," "Black—not Hispanic," "Asian or Pacific Islander," "Native American or Alaskan Native," or "Other." In 1991, 8.8 percent of students identify themselves as Hispanic, compared with 9.8 percent in 1997.

[22] Brindis, C., Wolfe, A.L., McCarter, V., Ball, S., and Starbuck-Morales, S. 1995. "The Associations between Immigrant Status and Risk-Behavior Patterns in Latino Adolescents." *Journal of Adolescent Health*, 17: 99–105; Harris, K.M. 1998. "The Health Status and Risk Behavior of Adolescents in Immigrant Families." In *Children of Immigrants: Health, Adjustment, and Public Assistance*, edited by D.J. Hernandez. Committee on the Health and Adjustment of Immigrant Children and Families, Board on Children, Youth, and Families. Washington, DC: National Academy Press.

[23] For examples of interventions connecting to teens in these settings, see Sonenstein, F.L., Stewart, K., Lindberg, L.D., et al. 1997. *Involving Males in Preventing Teen Pregnancy*. Washington, DC: The Urban Institute, pp. 118–22.

[24] Resnick, M.D., Bearman, P.S., Blum, R.W., et al. 1997. "Protecting Adolescents from Harm: Findings from the National Longitudinal Study of Adolescent Health." *Journal of the American Medical Association* 278 (10): 823–32.

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[25] This approach differs from recent research examining health-enhancing behaviors directly, such as regular exercise, seat belt use, and adequate sleep. (See, for example, Jessor, R., Turbin, M.S., and Costa, F.M. 1998. "Protective Factors in Adolescent Health Behavior. *Journal of Personality and Social Psychology* 75 (3): 788–800]. Our interest is in examining adolescents' behavior outside of the limited realm of risky or enhancing health behaviors and to look more broadly at other socially desirable behaviors.

[26] Positive behaviors in Add Health include: *Good Grades*—defined as a B average or higher for most recent grading period; *School Sports*—defined as participating in or planning to participate in a school sport this year; *Other School Activities*—defined as participating in or planning to participate in a nonsport school extracurricular activity this year; *Religious Involvement*—defined as attending religious services or religious youth group once or more per month last year; and *Family Involvement*—defined as four or more of the following positive interactions with parents (resident and nonresident) in the past 4 weeks: shopping; playing a sport; going to a religious service or church-related event; talking about someone you're dating or a party you went to; going to a movie, play, museum, concert, or sports event; talking about a personal problem you were having; talking about your school work or grades; working on a project for school; talking about other things you're doing in school.

[27] Positive behaviors in the NSAM include: *Good Grades* (among in-school respondents)—defined as well above average or somewhat above average; *Always Employed* (among out-of-school respondents)—defined as always having a full- or part-time job since leaving school; *Sports*—defined as having spent 10+ hours playing sports per week; *Clubs*—defined as having spent 1+ hours a week in clubs or youth groups; *Religious Involvement*—defined as believing religion is very important or somewhat important.

[28] Participation in the following settings as measured in Add Health: *Team Sports*—defined as having participated in, or planned to participate in, a school sport in the year of the interview or played soccer, football, softball, baseball, etc., in the four weeks before the interview; *School Clubs*—defined as having participated in, or planned to participate in, a nonsport school extracurricular activity in the year of the interview; *Religious Institutions*—defined as having attended any religious services or religious youth groups in the year before the interview; *Workplace*—defined as having worked for pay in the four weeks before the interview; *Health Care*—defined as having received a routine physical examination in the 12 months preceding the interview.

[29] Participation in social settings as defined in NSAM: *Sports*—defined as spending 10 or more hours playing sports each week; *Clubs*—defined as having spent one or more hours a week in clubs or youth groups; *Workplace*—defined as having a full- or part-time job in the 12 months preceding the interview; *Health Care*—defined as receiving a routine physical examination in the 12 months preceding the interview; *Criminal Justice System*—defined as having ever been picked up by the police, arrested, and/or spent time in jail.

[30] Resnick M.D., Bearman, P.S., Blum, R.W., et al. 1997. "Protecting Adolescents from Harm: Findings from the National Longitudinal Study of Adolescent Health." *Journal of the American Medical Association* 278 (10): 823–32.

[31] Hawkins, J.D., Catalano, R.F., Kosterman, R., et al. 1999. "Preventing Adolescent Health Risk Behaviors by Strengthening Protection during Childhood." *Archives of Pediatric and Adolescent Medicine* 153: 226–34.

[32] Miller, B.C. 1998. *Families Matter: A Research Synthesis of Family Influences on Adolescent Pregnancy*. Washington, DC: The National Campaign to Prevent Teen Pregnancy.

[33] Resnick M.D., Bearman, P.S., Blum, R.W., et al. 1997. "Protecting Adolescents from Harm: Findings from the National Longitudinal Study of Adolescent Health." *Journal of the American Medical Association* 278 (10): 823-32.

[34] Data are presented separately by race/ethnicity, gender, and grade, but only significant differences ($p < .05$) are highlighted in the text. Significance tests were calculated to adjust for the complex sampling design of the Add Health survey. All estimates are weighted to adjust for students' nonresponse and oversampling.

[35] This includes students planning to participate on a school sports team in the current school year.

[36] In addition, multiple-risk students have elevated receipt of some specialized health care services such as psychological counseling, family planning, and substance use treatment.

[37] American Medical Association. *Guidelines for Adolescent Preventive Services (GAPS)*. http://www.ama-assn.org/adolhlth/recomend/recomend.htm.

[38] Sonenstein, F.L., Stewart, K., Lindberg, L.D., et al. 1997. *Involving Males in Preventing Teen Pregnancy*. Washington, DC: The Urban Institute, pp. 118–22.

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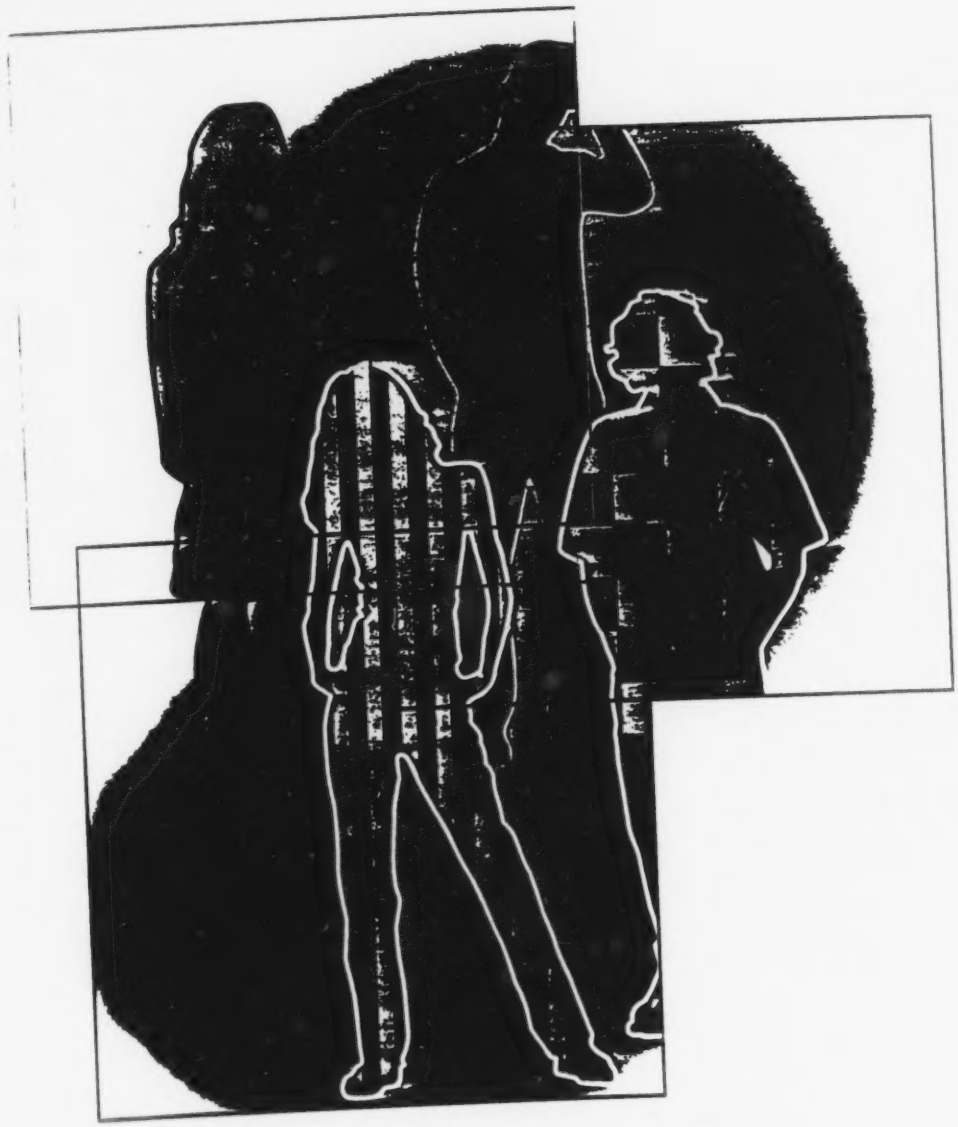

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